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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
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10/664,406

09/19/2003

Torsten Leifert

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02/08/2006

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EXAMINER

SWENSON, BRIAN L

ART UNIT

PAPER NUMBER

3618

DATE MAILED: 02/08/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

|                              |                               |                                  |  |
|------------------------------|-------------------------------|----------------------------------|--|
| <b>Office Action Summary</b> | Application No.<br>10/664,406 | Applicant(s)<br>LEIFERT, TORSTEN |  |
|                              | Examiner<br>Brian Swenson     | Art Unit<br>3618                 |  |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 10/12/05.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-14 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |   |   |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                        | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)    | Paper No(s)/Mail Date. _____  |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____   | 6) <input type="checkbox"/> Other: _____                                    |

**DETAILED ACTION**

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

1. Claims 1-3, 9 and 14 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 5,823,280 issued to Lateur et al.

Lateur et al. teach in Figures 1-8 and respective portions of the specification of a mobile machine, comprising: at least two electrical drive systems (12; 14); at least one electrical control system (26); and at least one electrical power source (24), wherein during deceleration (Figure 5), at least a portion of the electrical energy generated by at least one of the electrical drive systems being decelerated is fed to at least one other electrical drive system (see Figure 5; where during deceleration electrical drive systems provide regenerative braking forces and current flows are calibrated based on deceleration characteristics).

In regards to claim 2, motor generator (15) is connected to power controller (16), which is connected with storage cell (24) and is configured to absorb energy during regenerative braking.

In regards to claim 3, see Figure 5 and Col. 7, lines 60 through Col. 8 where the recharging mode is taught.

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In regards to claim 9 and 14, Lateur et al. teaches of electrical power source includes a heat engine (22; combustion engine (Col. 1, line 5) with a connected generator (12).

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 4, 8 and 10-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lateur et al.

In regards to claims 4 and 12 Lateur et al. teaches that friction brakes are used to slow the vehicle when the braking demand exceeds the regenerative braking loading (see at least Col. 10, lines 31-33). Lateur et al. does not specifically teach of using the friction brakes when the storage cells are completely charged. It would have been obvious to one having ordinary skill in the art at the time of invention to use the friction brakes in place of the regenerative braking when the storage cells are at full capacity to provide the advantage of prolonging battery life by preventing over charging.

In regards to claim 10, Lateur et al. states in the technical field (Col. 1, heading) that the invention relates generally to electric vehicles and electric fuel powered vehicles but does not specifically state if the vehicle is an industrial truck. It would have been obvious to one having ordinary skill in the art at the time of invention to use the vehicle

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structure disclosed in an industrial truck, as industrial trucks are well-known to utilize hybrid electric drive structure.

In regards to claims 8 and 11, Lateur et al. states that a source of electrical energy, e.g., a battery pack is provided (see at least Col. 2, lines 42) but does not teach of using a high-capacity capacitor or a fuel cell. It would have been obvious to one having ordinary skill in the art at the time of invention to use a capacitor or a fuel cell as both are well-known energy storage cells in the hybrid electric vehicle art and would be an obvious choice for a worker having ordinary skill in the art based on their availability.

3. Claims 5 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lateur et al., as disclosed above and in view of U.S. Patent No. 6,454,033 issued to Nathan et al.

Lateur et al. discloses the claimed invention except for teaching of a hydraulic system for the vehicle.

Nathan et al. teaches in Figures 1 through 2 of an electric vehicle including teaching of a hydraulic transmission (variable displacement pump 4 and motor 3) connected to a motor (60) for driving the wheels of a vehicle and teaches in Col. that the system is used for regenerative power generation (see at least Col. 6, lines 20+).

It would have been obvious to one having ordinary skill in the art at the time of invention to use a hydraulic transmission, as taught by Nathan et al. as the torque transmission (18) means in the invention taught by Lateur et al. One would be motivated to use a hydraulic transmission to allow the output gear ratio to be adjusted allowing for the vehicle to operate at an optimal efficiency.

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4. Claim 6-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lateur et al., in view of Nathan et al. as disclosed above, and in further view of U.S. Patent No. 4,278,298 issued to Sauka et al.

Lateur et al. as modified by Nathan et al. disclose the claimed invention except for teaching of a pressure-reducing valve for hydrodynamic braking.

Sauka et al. teach of a system for utilizing dynamic and hydraulic braking, including teaching of a pressure reducing valve (27) that dissipates energy of drive shaft (9) by converting it to thermal energy by mechanical brake (20). It would have been obvious to one having ordinary skill in the art at the time of invention to provide a pressure reducing valve (27), as taught by Sauka et al., actuated by the pressure sensor (45; Nathan et al.) in the invention taught by Lateur et al. as modified by Nathan et al. to provide the advantage of hydrodynamic braking relieving dependence on mechanical friction brakes.

### ***Response to Arguments***

Applicant's arguments filed 12 October 2005 have been fully considered but they are not persuasive.

In response to applicant's arguments that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., "[t]hus, in the claimed invention, the electricity generated by the decelerating motor 4 can be used to power the other motor 5 rather than being fed into a buffer storage mechanism or similar device (paragraph 4, page 2 of the amendment)"; "there is no teaching or suggestion in Lateur that during deceleration of one of these motors the

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energy is used to power the other motor rather than being directed to an electrical storage device (paragraph 5, page 2 of the amendment)"; "Lateur neither teaches nor suggests the claimed invention in which the electrical energy generated by one decelerating electrical drive system is used to power another electrical drive system (first full paragraph, page 3 of the amendment)" ) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

Specifically, applicant argues throughout the response that Lateur does not teach of: electrical energy generated by one decelerating electrical drive system is used to **power** another electrical drive system. Applicant does claim, in claim 1, "...electrical energy generated by at least one of the electrical drive systems being decelerated is **fed** to at least one other electrical drive system." As shown in Figure 1 the electrical drive systems (12,14) are connected mechanically (74,76) and connected electrically (see arrowheads connecting electrically drive systems with power controller 16). Figure 5, where during deceleration the motors provide regenerative braking forces and current flows are calibrated based on deceleration characteristics.

### ***Conclusion***

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within

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TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brian Swenson whose telephone number is (571) 272-6699. The examiner can normally be reached on M-F 9-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Christopher Ellis can be reached on (571) 272-6914. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


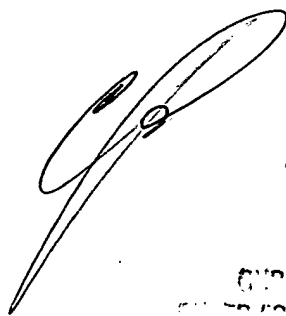
Brian Swenson  
Examiner  
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